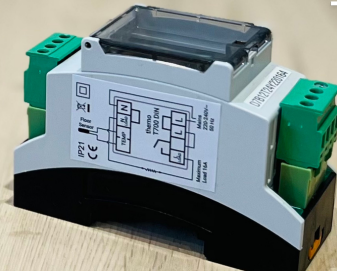


Product Information



Themo T700DIN

Themo T700DIN Smart Thermostat and Electricity Price Switch

Intelligent heating controlling unit for electric heating that checks the electricity price and adapts with your heating profile.

Themo T700DIN is a DIN rail mounted digital heating controller. The device has a Wi-Fi chip, which can be used to connect the device to your home network. When the device is connected to the Internet, Themo can be controlled from a mobile app and it reads the real-time info of your electricity prices. Themo T700DIN can be used either as an intelligent thermostat for floor heaters or as a Price Switch, which can be used to control multiple electricity consumers, such as hot water heaters, SG-ready heat pumps or other similar devices.

Features and operating modes of Themo T700DIN

Floor heating thermostat mode

The Themo T700DIN device can be used as a smart thermostat for electric floor heating that optimizes the use of stock electricity. Themo learns the heating characteristics of your floor and calculates the cheapest way to reach the desired temperature at different times of the day.

Smart program

Create a detailed weekly program according to your heating needs. Themo automatically optimizes the heating cycle for the most favorable hours.

Machine learning and weather forecasts

Themo takes into account changes in the outside temperatures when controlling the heating. Themo accurately learns room availability and enables accurate temperature timing in different weather conditions.

Remote control

Temperatures and heating programs can be modified with a mobile device or computer.

Energy consumption history

View the active times of heating and their effects on your electricity bill. In Price Switch mode you can monitor the time period when relay was in ON state.

Price Switch mode

In Price Switch mode, Themo T700DIN controls the relay output only based on the electricity stock prices and the user set parameters. The feature has been developed for hot water heaters and heat pumps to consume energy only during the cheapest electricity hours. The heating systems own thermostat acts as a heating limiter. An external temperature sensor can be connected to the heating device to monitor temperature development from the app.

Three parameters are entered for Themo:

1. Power ON hours

This is how many hours Themo will keep power ON in your device. Themo will choose the cheapest electricity price hours every day. Note: the user's own thermostat acts as a heating limiter.

2. Maximum consecutive OFF hours

The maximum length of consecutive hours within a day where Themo can keep power OFF in your device.

3. Electricity spot price limit

You can set a maximum spot price limit for your Themo. If the spot price goes higher than the limit, Themo will turn power OFF in your device.

Designed for mobile use



Themo has been developed for smartphone and tablet use. The easiest way to manage settings is through the Themo mobile app, available for iOS (> Version 12.4) and Android (> Version 7.0). The app is free.

Device operating modes (MODE)

Floor heating thermostat modes

SCHEDULE: In smart program mode, Themo controls the heating according to the individual heating program, using e.g. exchange electricity price information.

MANUAL: In manual mode, Themo works as a "traditional" thermostat. The constant temperature of the manual mode can be adjusted from the mobile application or the front panel of Themo.

OFF: floor heating is turned OFF. Frost protection can be enabled.

Price Switch modes

PRICE SWITCH: In Price Switch mode, Themo T700DIN controls the relay output only based on the electricity stock prices and the user set parameters. When the device is without an Internet connection for more than 24 hours, the device bypasses the smart control and turns relay ON.

ON (always ON): The power is turned on in your device.

OFF (always OFF): The power is switched off in your device.

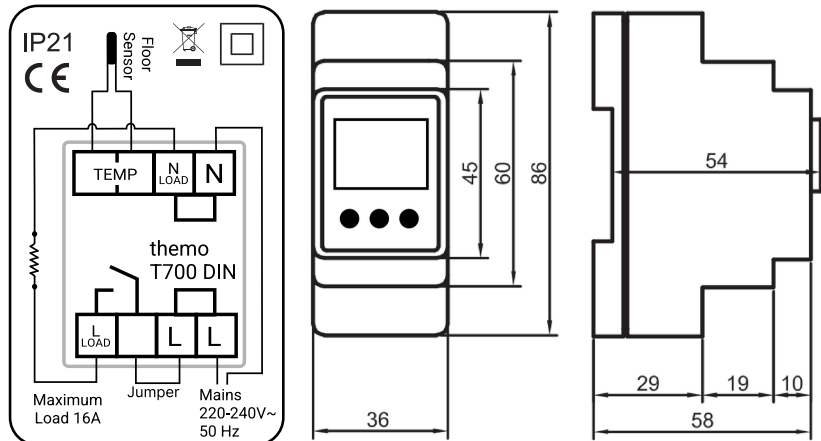
Mechanical design

Wiring interface

The Themo thermostat, which can be mounted on a DIN rail, can be used to control 230V, 24V and dry contact based heating systems. You can see the connection of the wires in the connection diagram. When controlling underfloor heating, connecting the floor sensor is mandatory for the thermostat to work correctly.

More detailed installation instructions can be found in the installation guide.

NOTE: read the contactor recommendations at the end of this document.



Features

Smart schedule

Energy history

Weather adaption

Electricity price view

Price switch mode

Software updates over Wi-Fi

Multiple schedules

Spot price limit

Frost protection

Themo app

Specifications

Temperature sensor

external sensor can be connected

Operation Voltage

220-240V or 24V , 50 Hz

Standby power consumption

Max 1,8
W

Relay

Max 16 A @ 230 V
Recommended max 12 A @ 230 V

Supported floor sensors

- @ 25°C NTC 6,8 kOhm
- @ 25°C NTC 10 kOhm
- @ 25°C NTC 12 kOhm
- @ 25°C NTC 15 kOhm
- @ 25°C NTC 33 kOhm
- @ 25°C NTC 47 kOhm

Offline functionalities

In floor heating mode, Themo can follow smart schedule up to 24 hours after loss of internet. After that, Themo goes to frost protection mode. Themo can be controlled from the front panel.

In Price Switch mode, the device bypasses smart control after more than 24 hours without an Internet connection

Weight

150 g

Internet connection

WiFi 802.11 b/g/n 2.4GHZ-2.5GHZ

Buttons

1x mode, 1x value down, 1x value up

Remote control requirements

Wi-Fi connection with internet connection. Themo app for your phone or tablet with iOS or Android. Free Themo account.

Material and IP rating

Polycarbonate

Colour light gray and black

IP21

Languages

English

Estonia

Finnish

Russian

Connection Clamps

Use 1,5 mm or 2,5mm cables according to power need.

Regulatory Conformity

EU declaration of Conformity

The product is in conformity with the provisions of the following EC Directives, including all amendments, and with national legislation implementing these directives:

Low Voltage Directive 2014/35/EC
EMC Directive 2014/35/EC



Warranty

The device has a two-year device warranty granted by the manufacturer.

Contactor use and recommendation for Themo T700DIN

It is recommended to use a contactor if the power of the controlled heating device exceeds 3000W.

Fans, motors and other inductive loads may produce voltage spikes when turning off the load that are strong enough to harm Themo and cause unreliability. An **RC snubber** is required to be installed over the load to reduce the spikes. The RC snubber is installed between the phase and neutral of the load (L LOAD and N LOAD on Themo or A1 and A2 on contactor).

So called "silent" contactors are less likely to cause problems, as they usually have similar electronics embedded. However, there might be exceptions.

Hager ESC/ETC425S; ESC/ETC225S and ABB ESB16-20N contactors have been tested to work without an RC snubber.

Please consult your local electrician about your solution.